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March 6, 1995

RECEIVED

MAR 6, 1995

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

William F. Caton
Acting Secretary
Federal Communications Commission
Room 222
1919 M Street, N.W.
Washington D.C. 20054

In Re: **Ex Parte Presentation in PR Docket No. 93-144 (Amendment
of Part 90 of the Commission's Rules to Facilitate Future
Development of SMR Systems in the 800 MHz Frequency
Band)**

Dear Mr. Caton:

On February 17, 1995, representatives from Motorola, Inc. provided an overview briefing to staff members of the Wireless Telecommunications Bureau on the wireless technology used by the SMR service. Since the broad concepts discussed in this briefing are, in part, addressed in the above-referenced proceeding, it is appropriate to provide notice of this meeting. In addition, the attached slides were used in the meeting and have been distributed to the participating staff members.

Please call me at (202) 429-7249 should you have any questions on this matter.

Sincerely,



R. Michael Senkowski
Counsel to Motorola, Inc.

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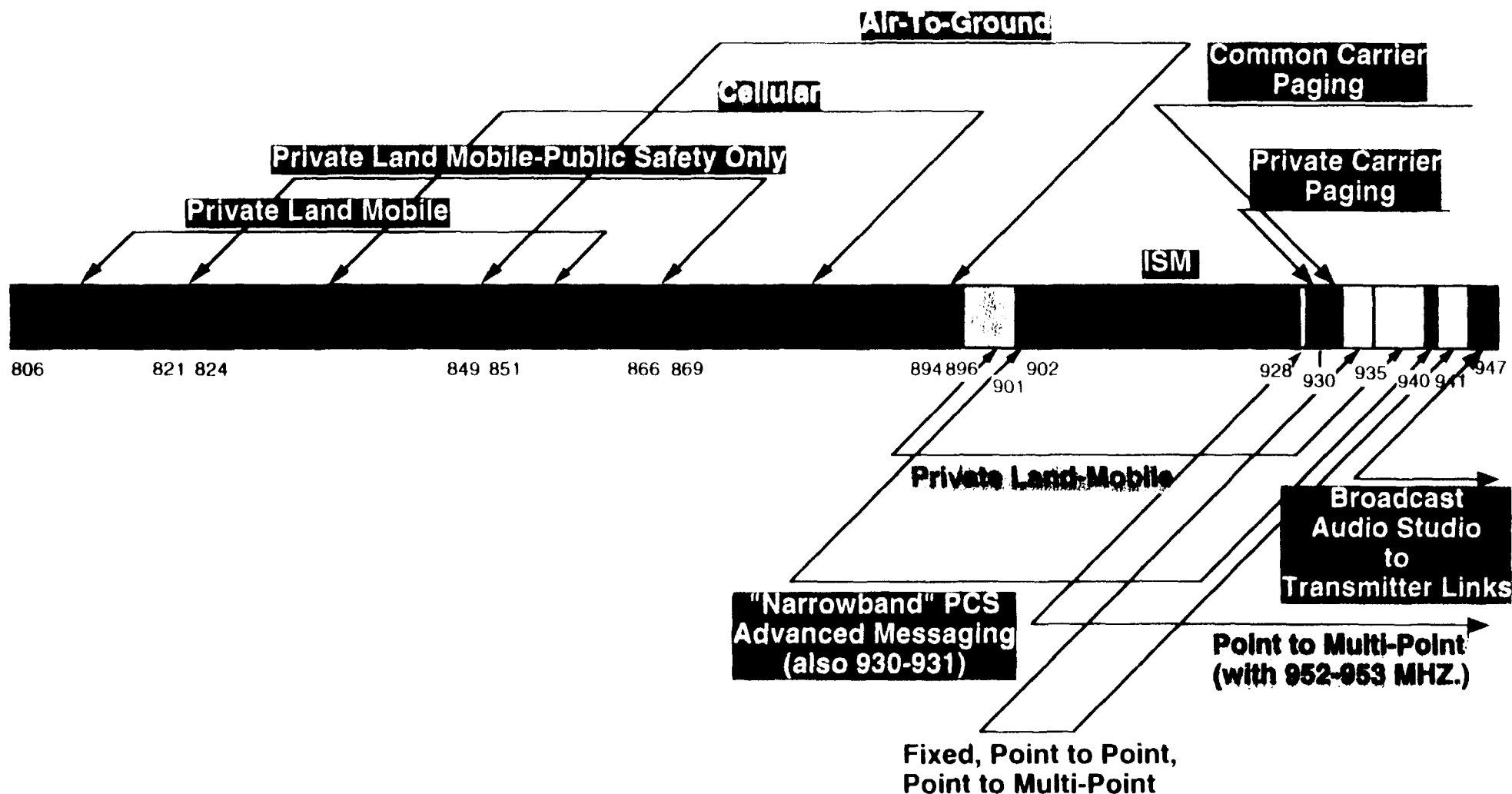
Development & Evolution SMR Industry

- FCC Licensing of SMR and Cellular
- Short Spacing
- SMR Consolidation / Development of the ESMR concept
- Analog trunking
- MIRS
- Alternative technology considerations





U.S. 800/900 MHZ FREQUENCY BAND SPECTRUM



Note -

Lower frequencies are typically for the mobiles.
Upper frequencies are typically for the base stations.



Cellular Licensing

- Licences granted in contiguous blocks
 - 20 MHz Initial
 - 25 MHz Current
- Licensing Rules
 - Licensed Territories provided clear spectrum
 - 306 MSA
 - 428 RSA
- Licensing Process
 - Comparative hearings, then Lotteries





SMR Licensing

- **Licensing Rules**

- Licensing in a “patchwork quilt “
- No fixed geographic boundaries (MSA, RSA, etc)
- 70 mile rule geographically spaced channels to mitigate interference
- On a channel by channel licensing to an applicant
- For use at a specific site only

- **Short Spacing**

- Reduced 70 mile separation to as close as 38 miles
- Interference was the “short-spacer’s” problem
- Geographic location of new operator blocked existing operator’s ability to relocate.
- Allowed low power frequency re-use
- Concept of ESMR created



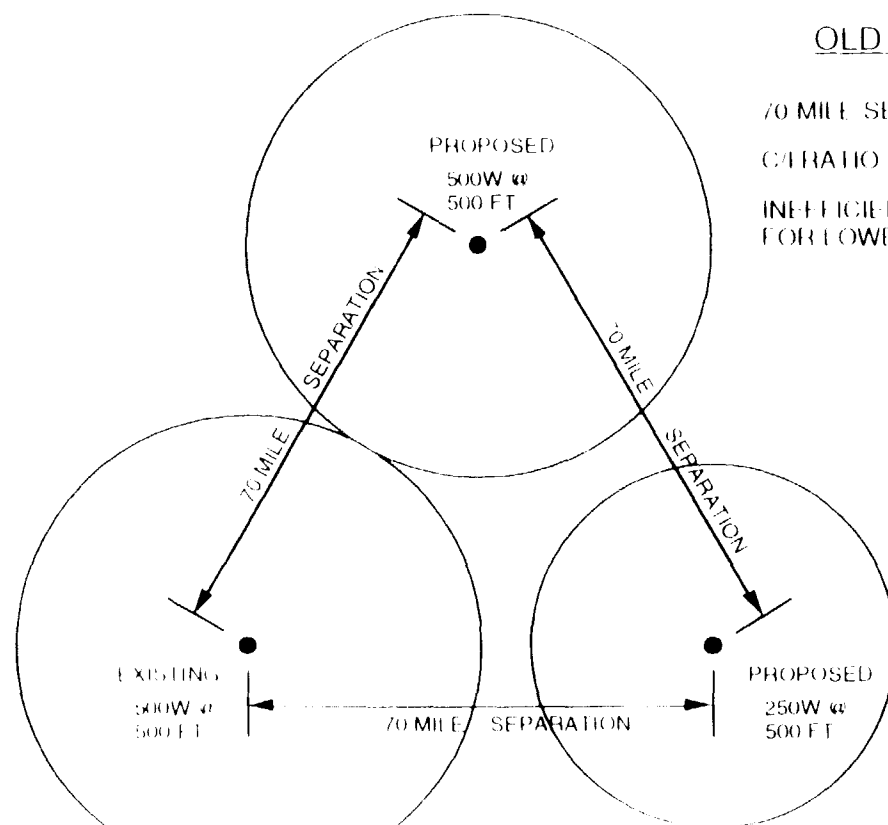


ESMR Licensing

- **Short Space Filings**
 - Many SMR operators flooded FCC with vast amounts of filings following FleetCall model
 - 45,000+ SMR applications in backlog
- **Nextel Proposal**
 - Mandatory channel relocation to clear 200 contiguous channels for ESMR
 - 200 contiguous channels with defined MTA boundaries
- **FCC Proposal**
 - Auction of 4 50 channel contiguous blocks
 - No mandatory relocation
- **Decision Pending**



70 MILE RULE



OLD RULES

70 MILE SEPARATION, MINIMUM

C/RATIO OF 21.3 dB OR BETTER

INEFFICIENT USE OF SPECTRUM
FOR LOWER POWER STATIONS



MOTOROLA INC.

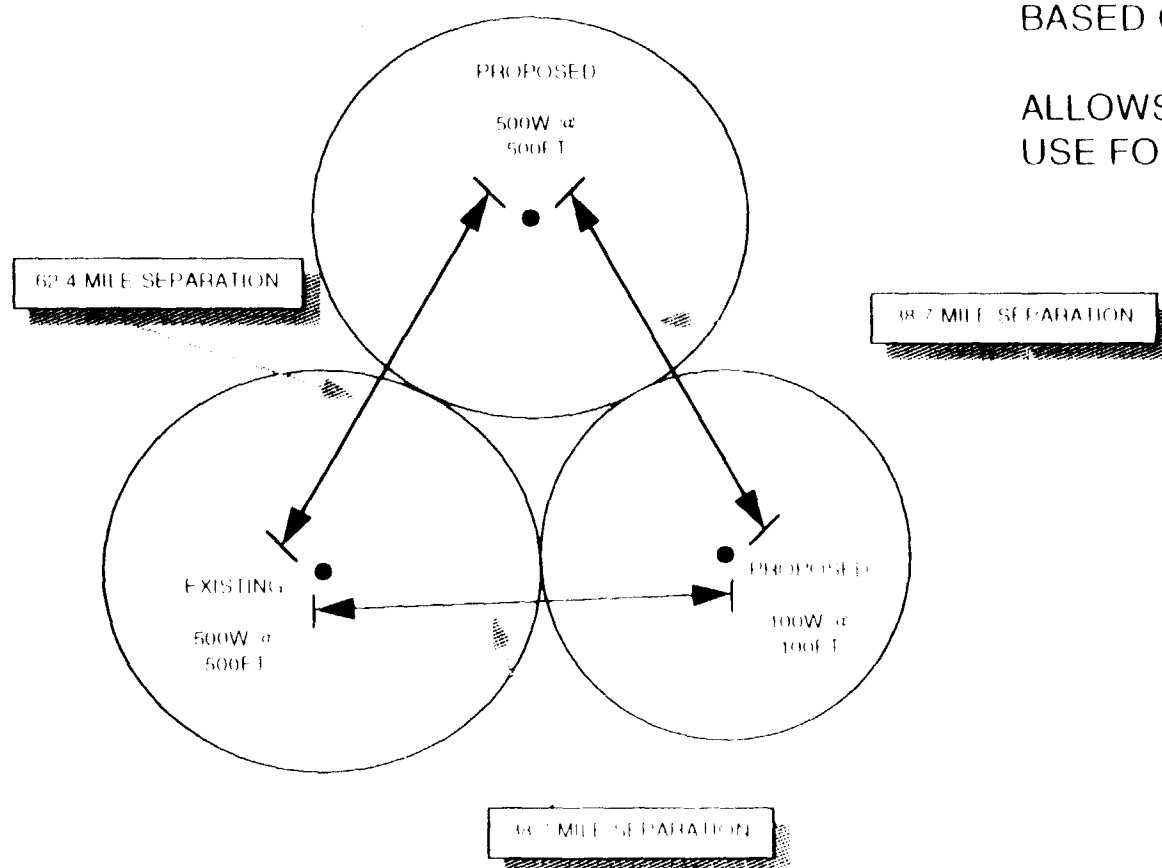


40 / 22 RULING

NEW RULES

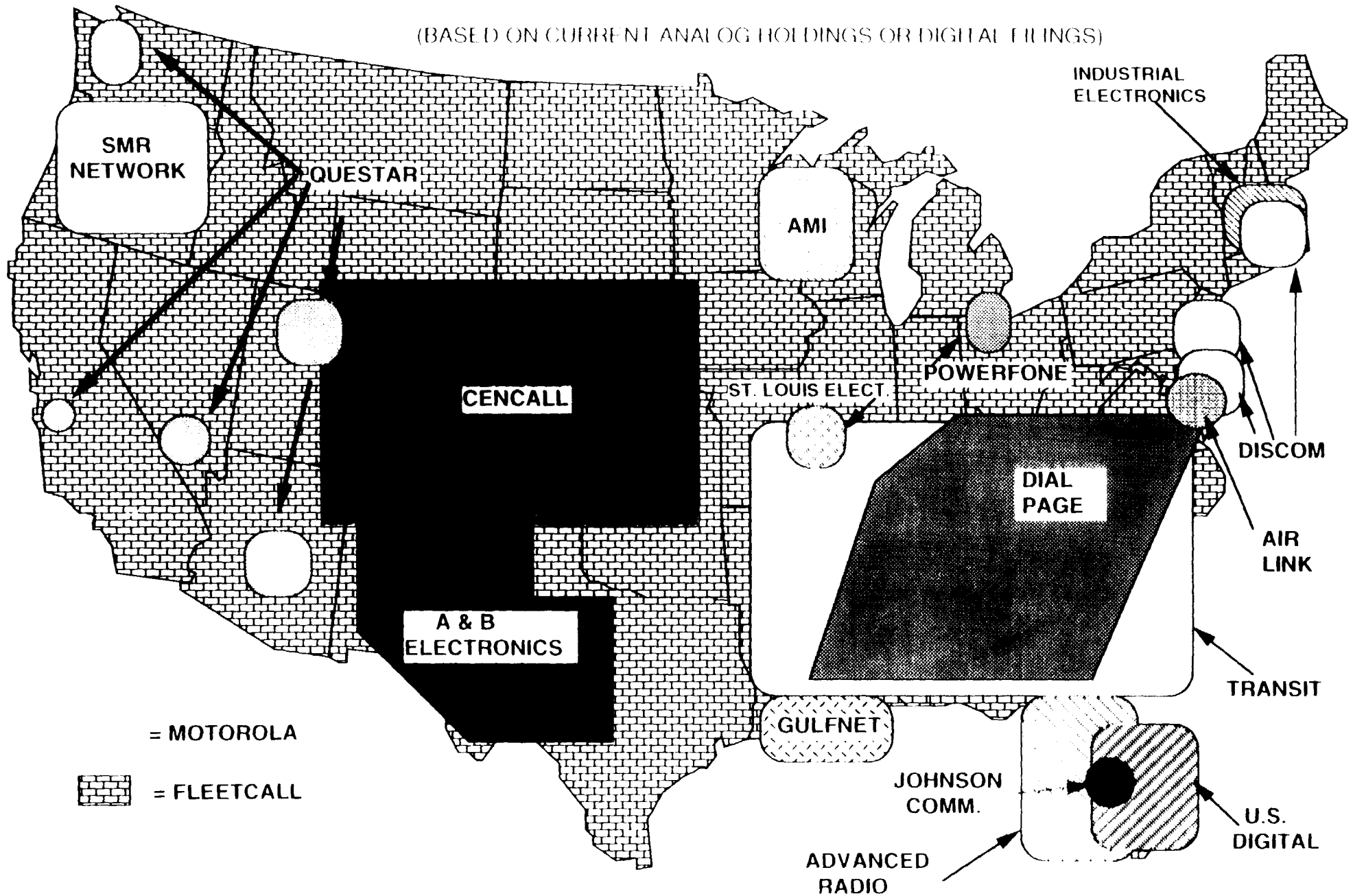
BASED ON FIXED 18 dB C/I

ALLOWS MORE EFFICIENT SPECTRUM
USE FOR LOWER POWER STATIONS



MAJOR SMR OPERATORS IN REGIONS

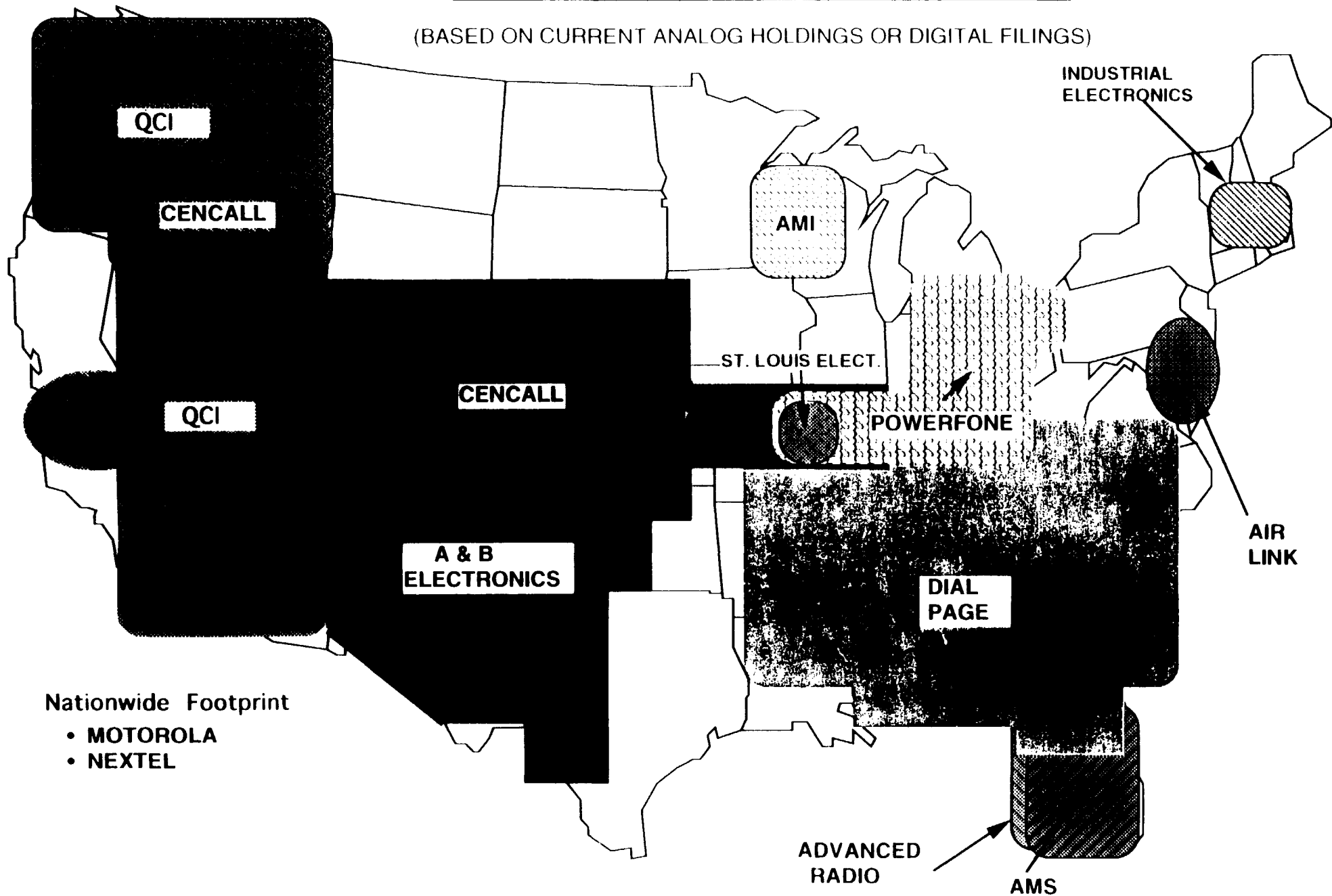
(BASED ON CURRENT ANALOG HOLDINGS OR DIGITAL FILINGS)



20 OCT 1992

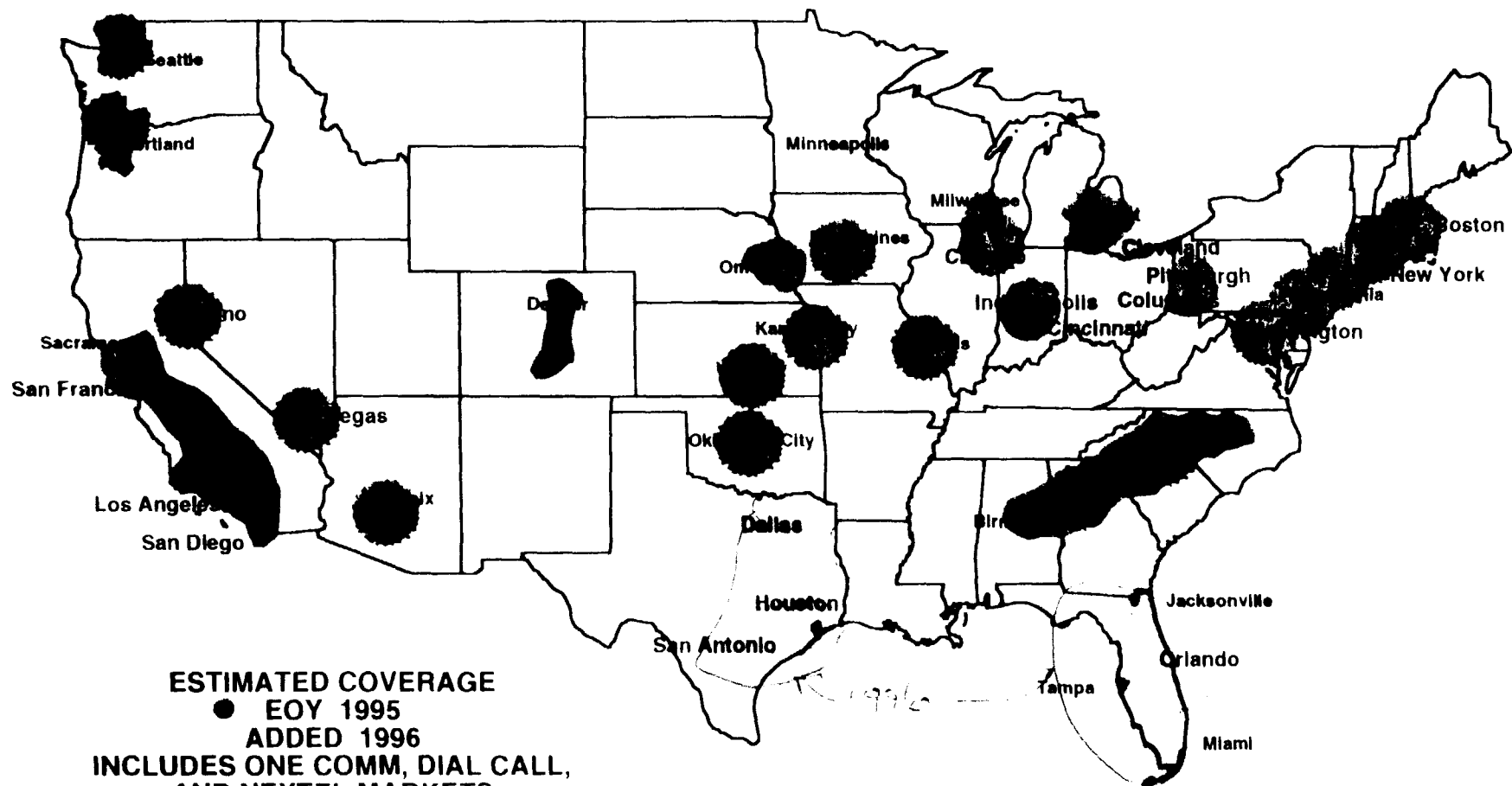
MAJOR SMR OPERATORS IN REGIONS

(BASED ON CURRENT ANALOG HOLDINGS OR DIGITAL FILINGS)



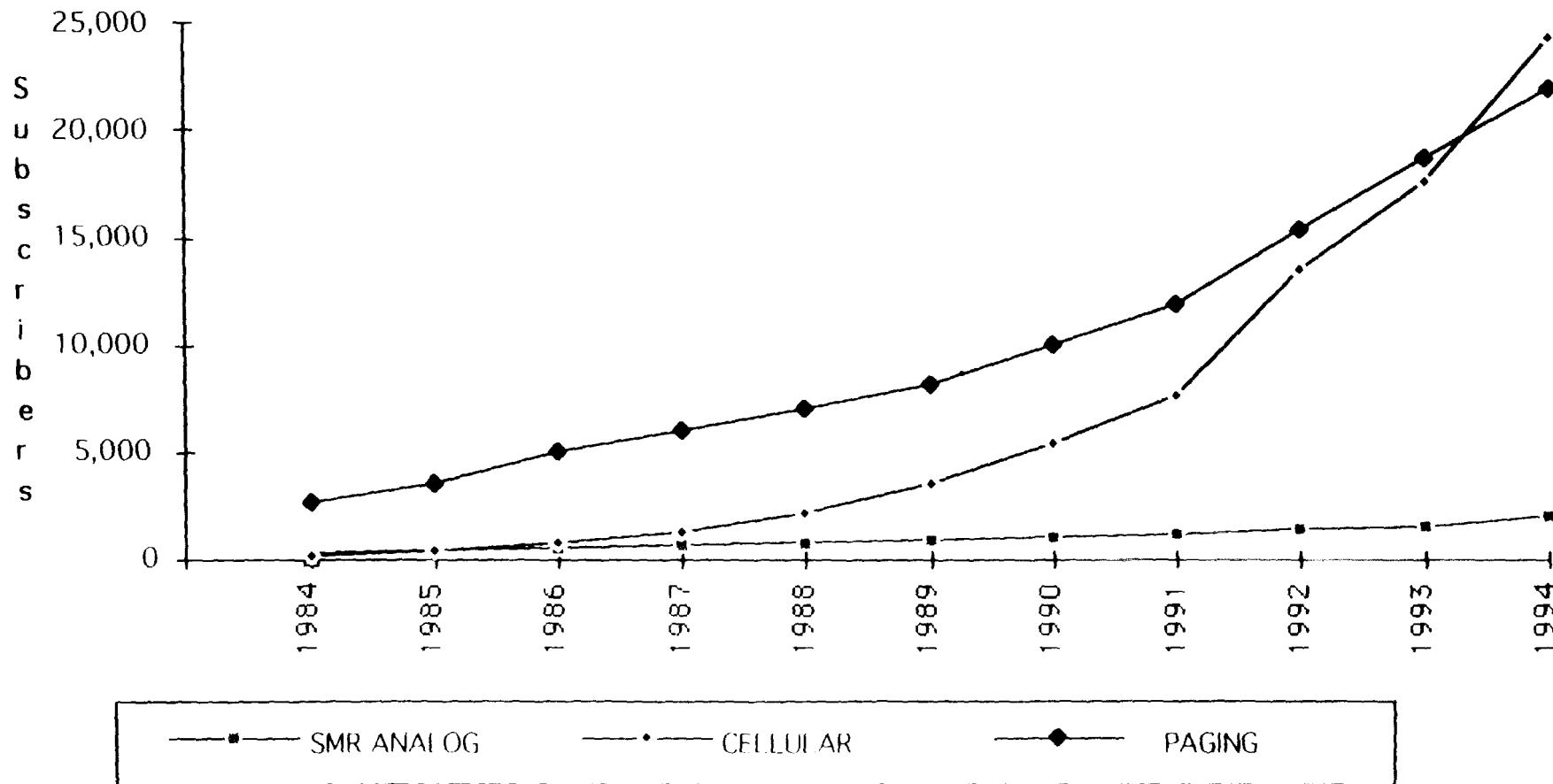
14 Sept 1993

1995-96 MIRS COVERAGE



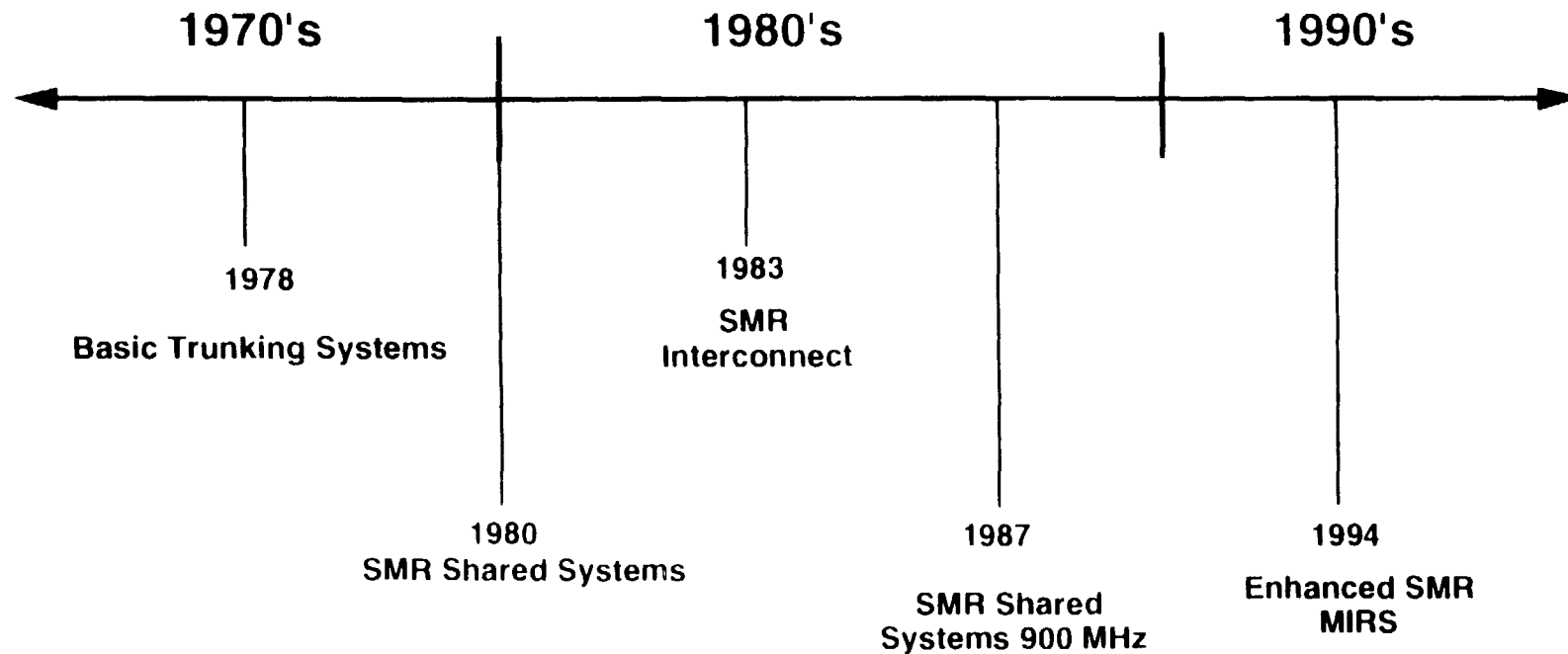


Industry Growth Paging, Cellular & SMR



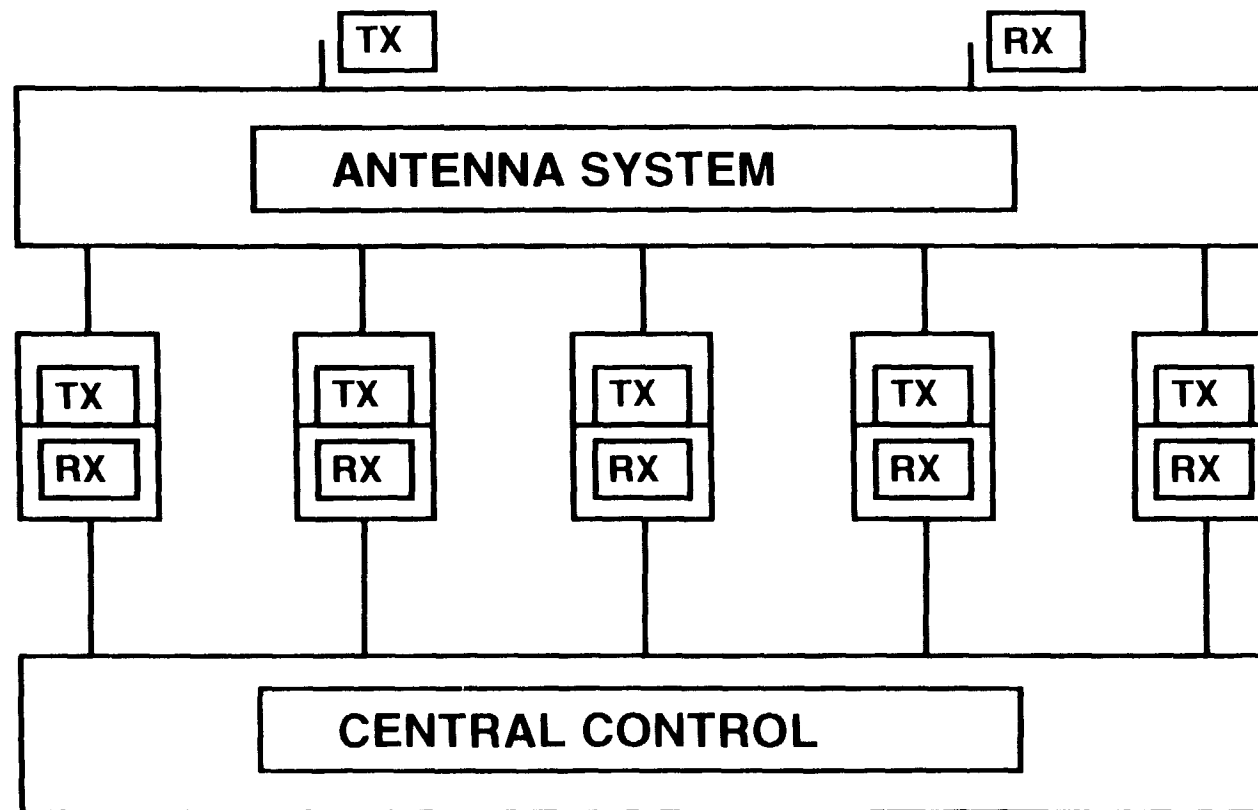


MIRS - DIGITAL TRUNKING FOR THE 90'S



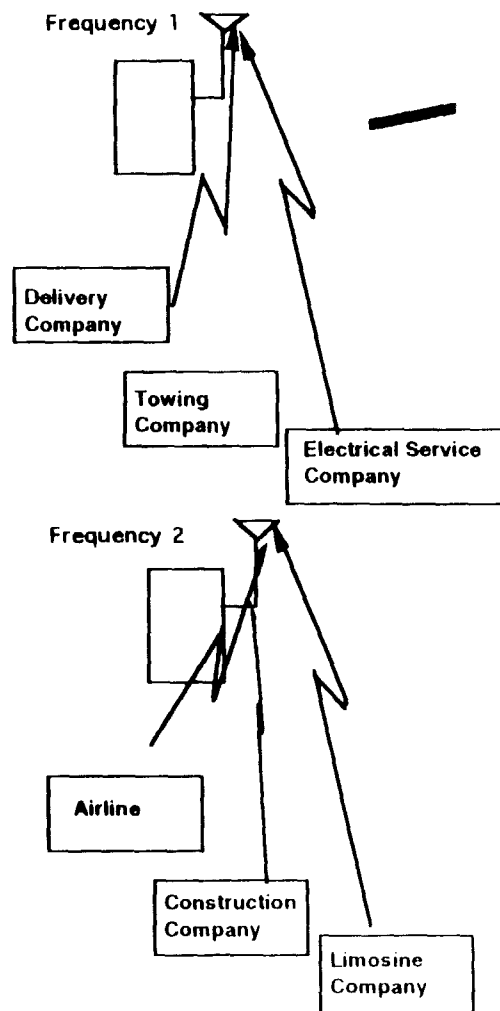


Trunking System

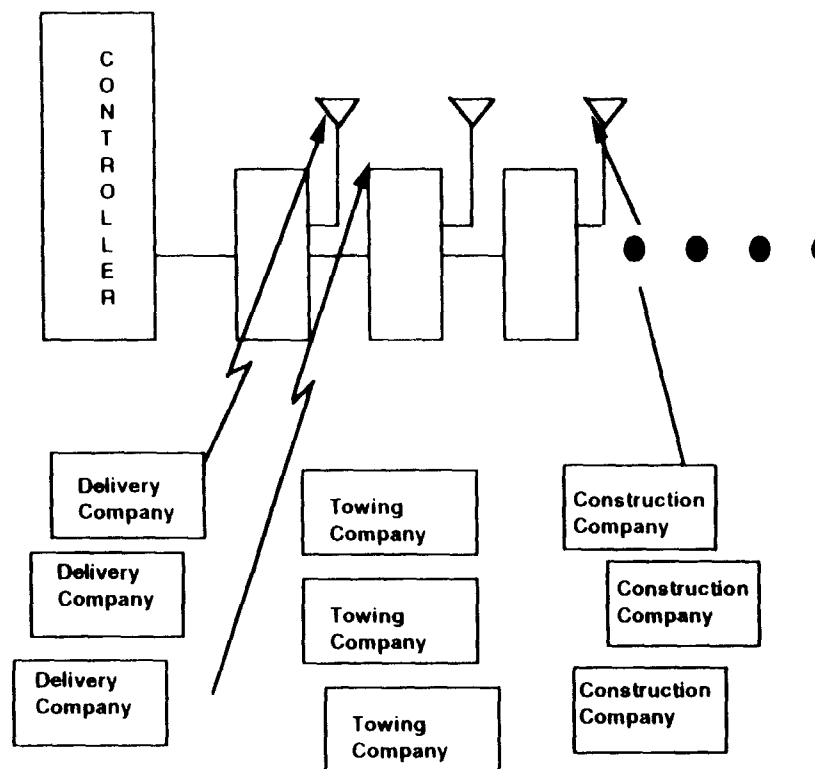




Conventional



Trunking

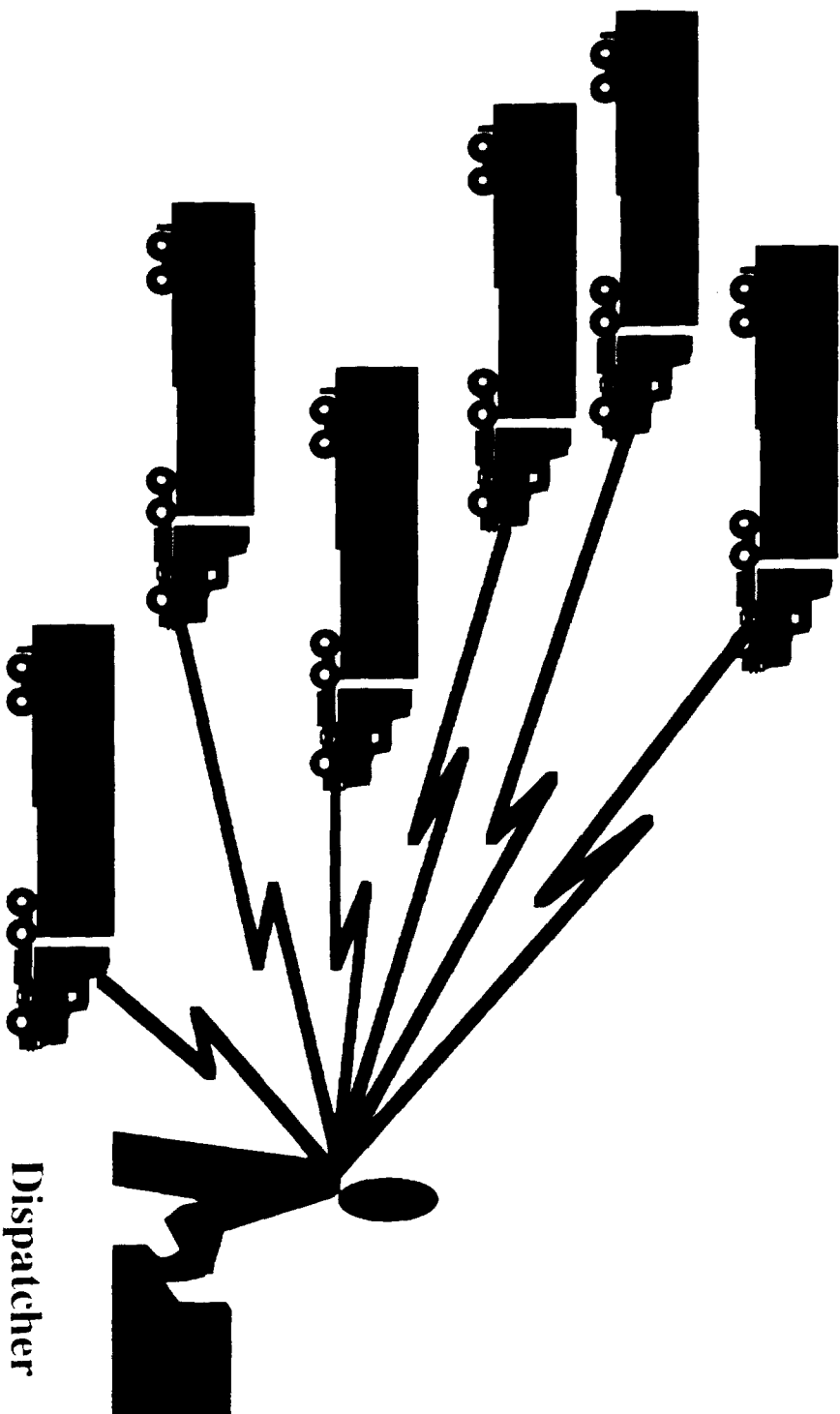




MOTOROLA
MIRS Infrastructure Division

R

Group Call



Dispatcher



Strategic Marketing & Product Development

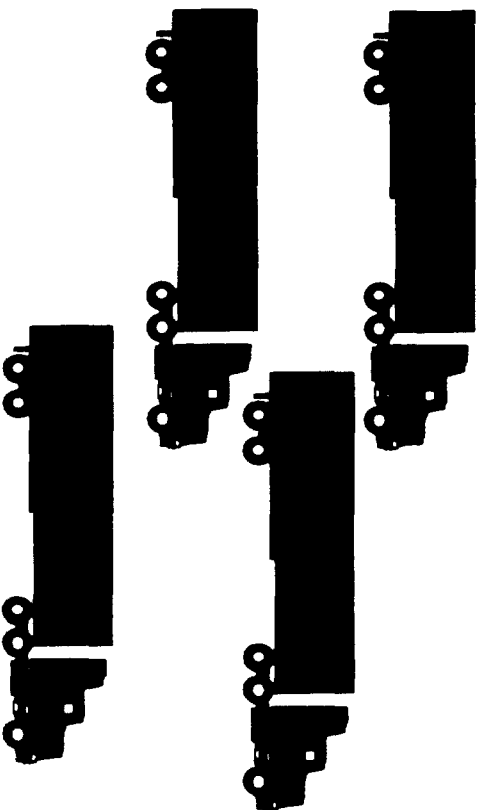
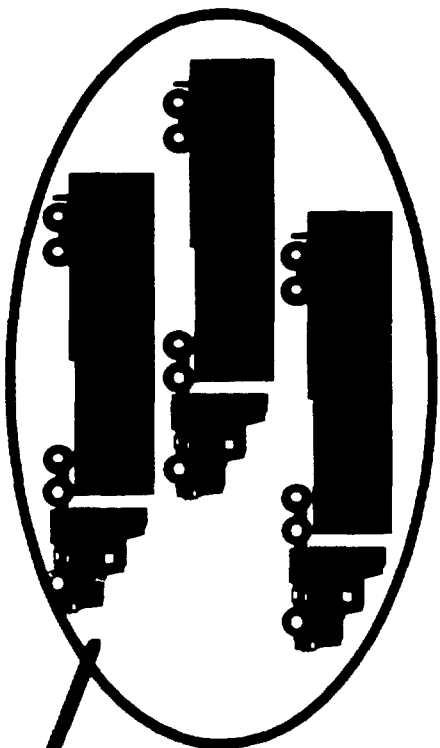
2/16/95



MOTOROLA
MIRS Infrastructure Division



Talkgroup Call



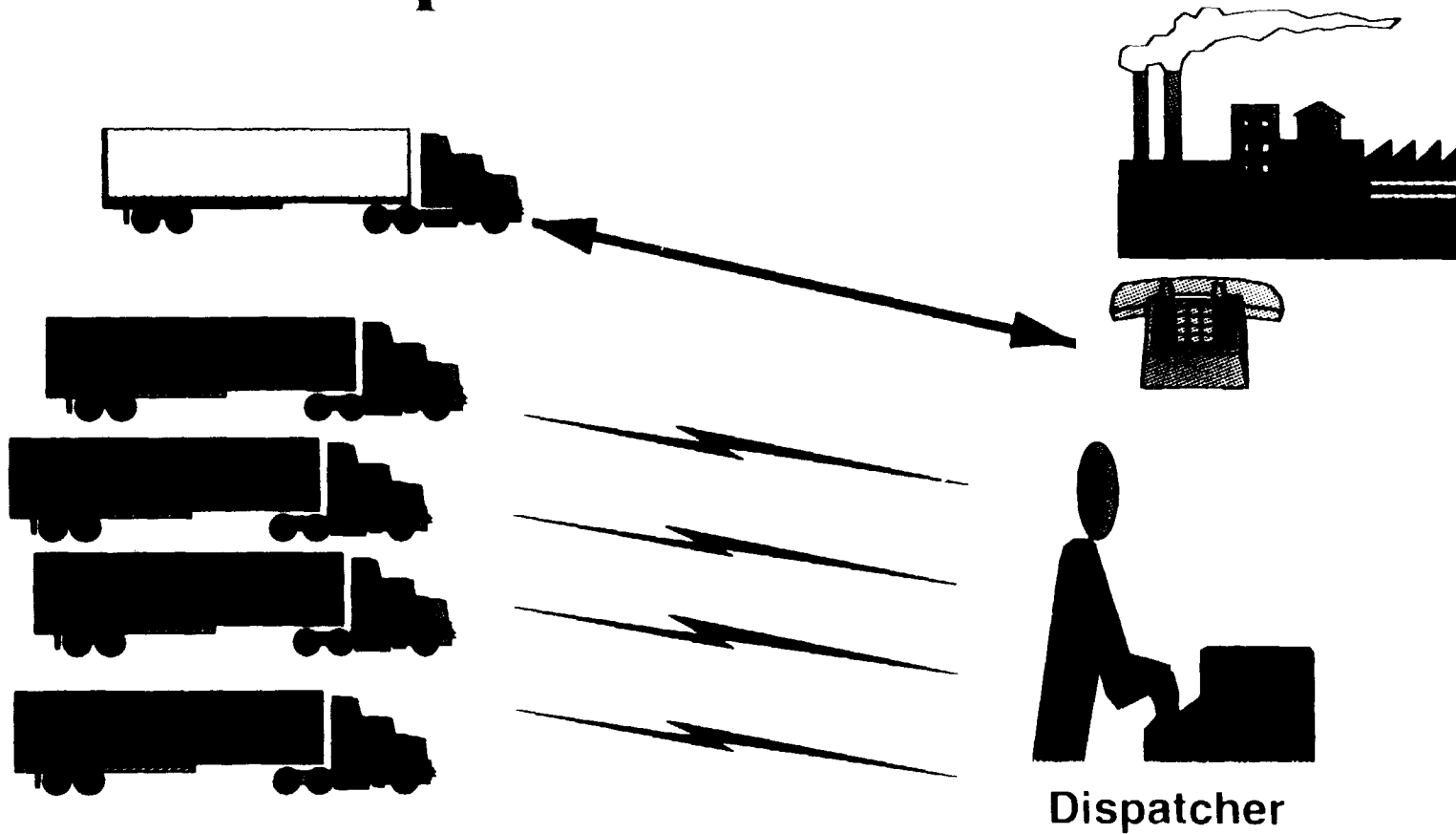
Dispatcher



Strategic Marketing & Product Development



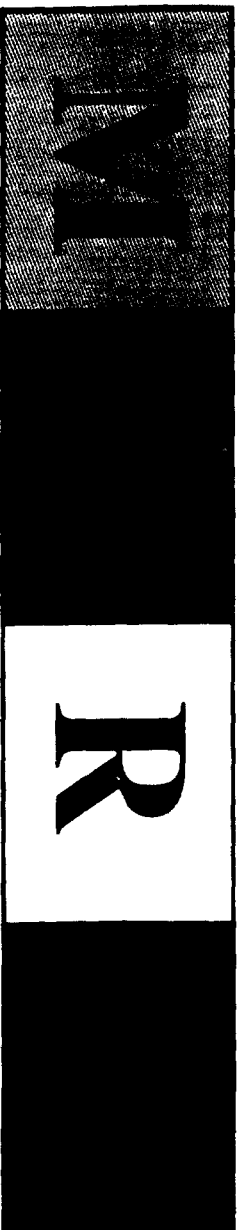
Telephone Interconnect





MOTOROLA

THE FIRST TRULY INTEGRATED



WIRELESS COMMUNICATIONS TECHNOLOGY



MOTOROLA

Service - Feature Mix

- **Improved Coverage with many sites**
- **Superior Platform of Integrated Services**

Dispatch

Private Call

Call Alert

Group, Subgroup, Wide Area

Interconnect

Cellular Feature Set

Superior Roaming Capability

Message Mail

Paging

**140 Character Short
Messages**

Voice Mail

Data

Circuit Switch (1995)

Packet (1996 / 1997)



MOTOROLA INC.

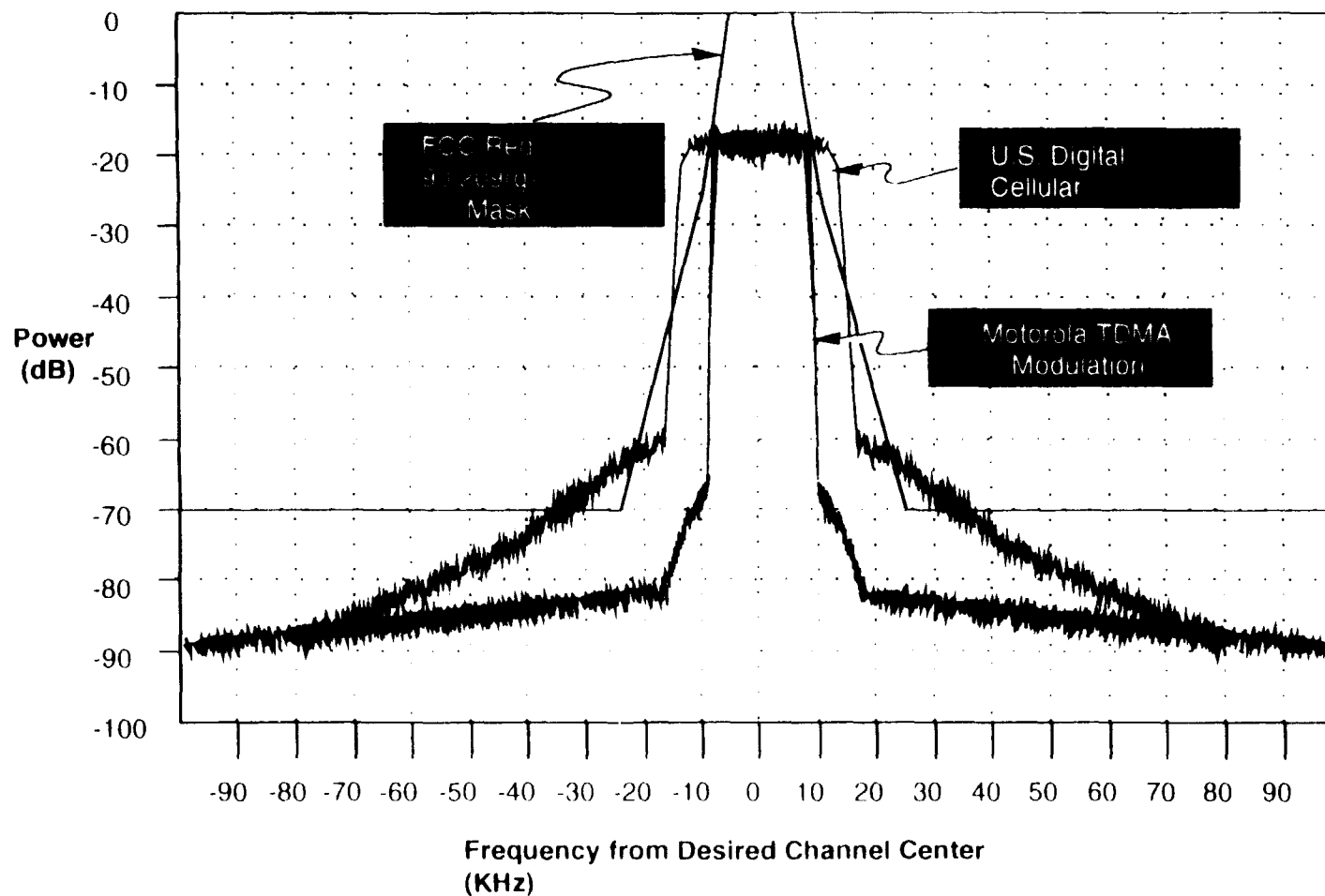
CORNERSTONE TECHNOLOGY **FOR MIRS IS** **M16QAM MODULATION**

- **Allows 6 voices per 25 kHz channel**
- **Permits high data speeds of 64 kbps gross bit rate per 25 kHz channel**
- **Low adjacent channel interference - within FCC guidelines**
- **Linear AM modulation allows higher data rate in channel than current FM modulation**

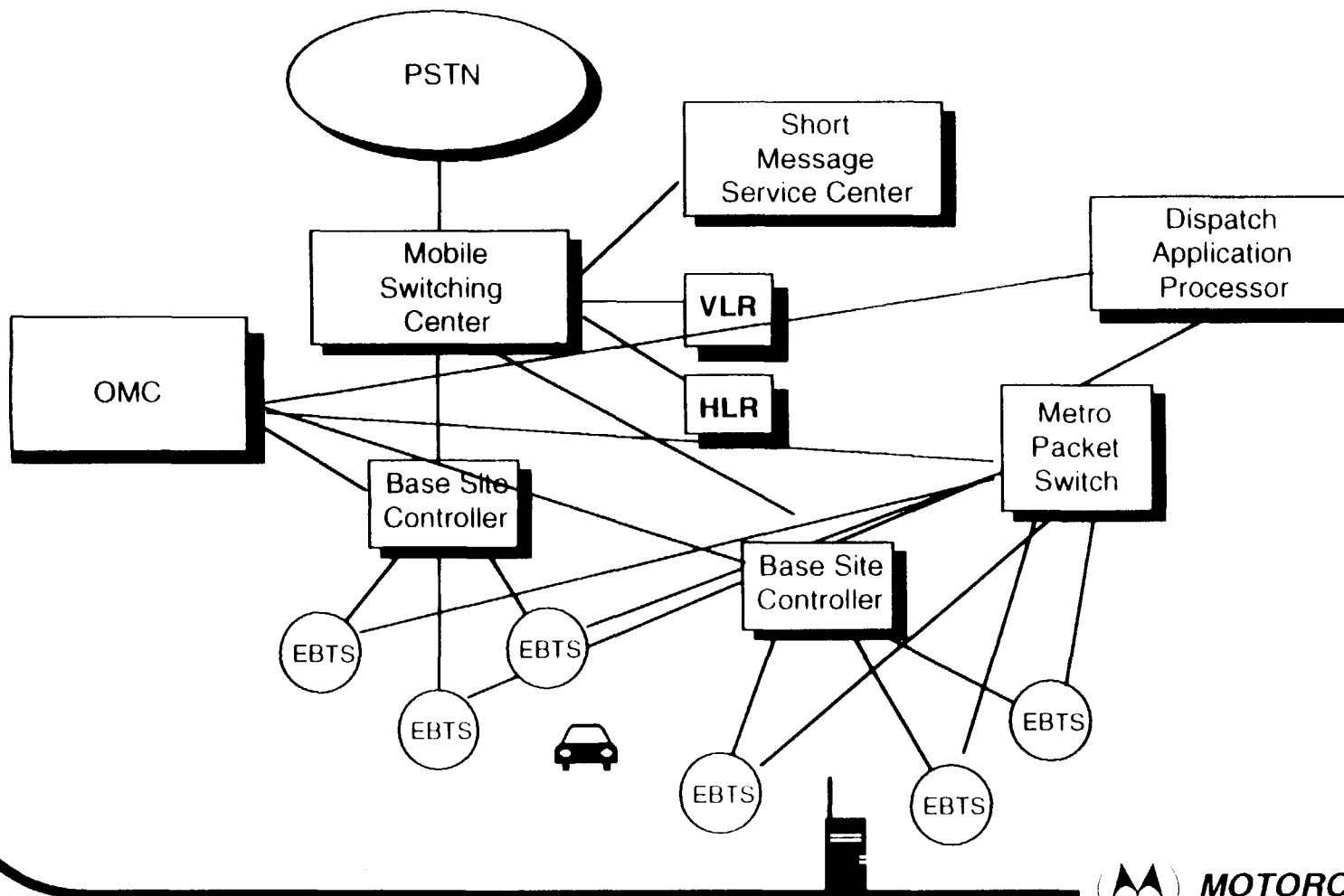


MOTOROLA

MOTOROLA M16QAM MODULATION APPROACH

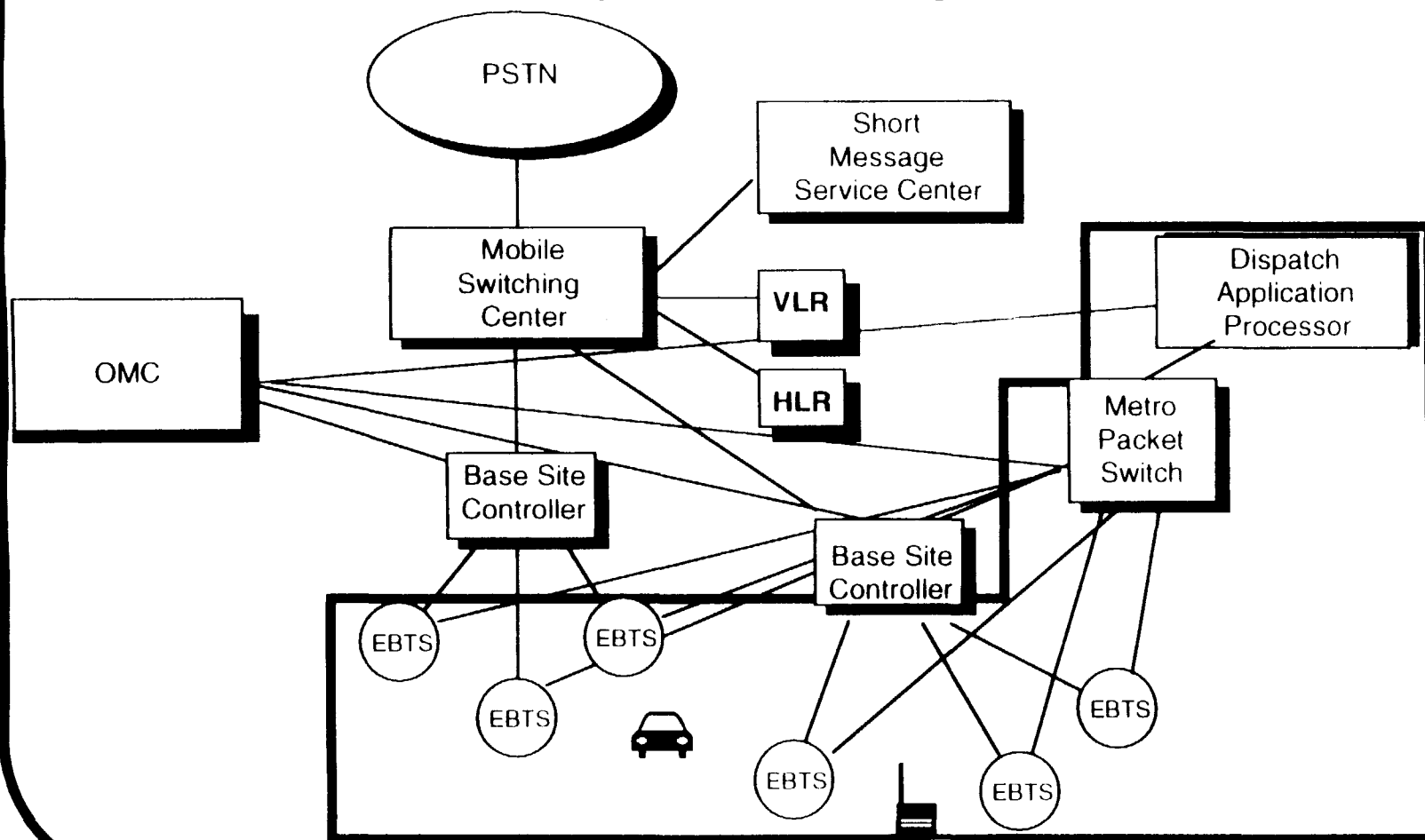


MIRS Network Elements



MIRS Network Elements

Dispatch Processing



MIRS Network Elements

Interconnect Processing

